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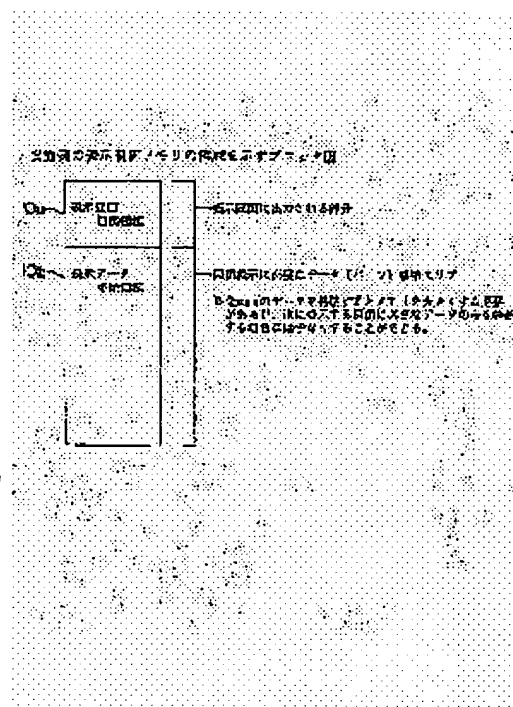
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(54) DISPLAY TERMINAL EQUIPMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To realize low-cost display terminal equipment where pictures are changed over at high speed as a user terminal such as the betting ticket issuing machine, etc., of a public race.

SOLUTION: A display control memory is provided with a display screen editing area for editing a display screen and a partial picture storage area for storing a partial picture which is displayed on the display screen. While monitoring information displayed on the display screen and input information of an input means such as a touch panel, partial picture data to be at least a succeeding display candidate is transferred to the partial picture storage area from a main memory and, then, corresponding partial picture data is read from the partial picture storage area based on input information of the input means so as to write it in the display screen editing area. Thus, the pictures are changed over on the display screen without giving a load onto a central processing unit(CPU) so that the display terminal is realized which apparently performs display at high speed at a low cost.



LEGAL STATUS

[Date of request for examination]

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention begins the automatic sale machine of the vote ticket used by municipally operated races, such as a horse race, a cycle race, a motorboat race, and a car race, applies it to the terminal unit of the installation mold which requires screen confirmation of a user, and relates to an effective technique.

[0002]

[Description of the Prior Art] In the automatic sale machine of this kind of vote ticket, it has the device in which read the entry information on that vote card optically, and a vote ticket is published, by a user's injecting cash and inserting a vote card [finishing / entry of an answer sheet exam].

[0003] It reads, information is inputted and the information processing system (computer system) for which the entry information on a vote card was read with the optical means and which recognizes this as vote information is carried in the interior of an automatic sale machine, and in order to check whether reading information is in agreement with a vote intention of a user, it has displays, such as CRT for making vote information display and check to a user, or a liquid crystal display.

[0004] A user checks visually the vote information on the self displayed on the indicating equipment, and has the composition that a vote ticket is published from the automatic sale machine by pushing an issue-of-banknotes carbon button etc. on it.

[0005] By the way, when the part (box) which should be filled in has the entry mistake with thin entry (mark) by which entry (mark) is not made on the occasion of entry of said vote card, the error part was displayed on the screen of said indicating equipment, and it has the function to urge the correction by actuation of the touch panel on a screen.

[0006] in order to raise the convenience to a user in recent years -- the display screen -- more -- a user -- there is an inclination made FURENDORI, display article mark will also increase in connection with this, and that to which the screen also planned all actuation of a user needs to be prepared.

[0007]

[Problem(s) to be Solved by the Invention] However, the general-purpose computer system was used for the computer system inside an automatic sale machine, since control of a display screen was transmitted to the memory for display controls, thawing the screen data of a compression condition from the main memory of a central processing unit (CPU), the load of a central processing unit (CPU) tended to become large, and processing tended to be delayed.

[0008] Especially, in this kind of automatic sale machine, in order to have to perform a lot of issue-of-banknotes processing to the time amount to ball-race initiation, the quick screen switch was demanded of the user.

[0009] Although it was accelerable when making memory for display controls large-scale, transmitting many indicative datas to the memory for display controls beforehand as this solution and editing the indicative data within this memory, mass memory was needed and there was a problem that the hardware cost of a control system became high.

[0010] This invention is made in view of such a point, and in such a user terminal, it is a simple configuration, and a high speed makes it a technical technical problem to offer the technique in which image display is possible, without covering a heavy load for a central processing unit (CPU).

[0011]

[Means for Solving the Problem] This invention is set for a display-control storage means, in order to solve said technical problem. The display screen edit field for editing the display screen displayed on a display means, The information which prepared the partial image storing field which stores the partial image displayed on said display screen, and was displayed on the display means, The partial image data which serves as the next display candidate at least is transmitted to the partial image storing field from the primary-storage means, supervising the input of an input means. Next, based on the input of an input means, corresponding partial image data is read from said partial image storing field, and it was made to write out to said display screen edit field.

[0012] Thereby, without covering a load over a central processing unit (CPU), a switch of the screen in the display

screen is attained and the display terminal in which a high-speed display is possible seemingly is realized by low cost. [0013]

[Embodiment of the Invention]

[Example] Hereafter, the gestalt of operation of this invention is explained based on a drawing. Drawing 1 is the front view showing the vote ticket automatic sale machine which is the example of this invention. The vote ticket exhaust port 2, the vote card slot 3, and the cash close payment opening 4 are formed, and, as for the vote ticket automatic sale machine 1 of this example, the display screen 5 in which the touch panel was prepared caudad is arranged.

[0014] A user inserts a vote card from the vote card slot 3, and he injects cash from the cash close payment opening 4, and after [which was displayed on the display screen 5] reading and checking the contents, he receives discharge of a desired vote ticket from the vote ticket exhaust port 2. moreover, cash -- a hit vote ticket may be inserted from the vote card slot 3 for replacing, and you may assign the next vote ticket purchase.

[0015] Furthermore, if this vote ticket automatic sale machine 1 is equipped with the repayment function and a hit vote ticket is inserted from the vote card slot 3, a corresponding refund will be repaid from the cash close payment opening 4.

[0016] It is drawing 4 which showed the functional configuration inside the vote ticket automatic sale machine 1 with the block diagram. Centering on the central control unit (CPU) 6, it consists of RAM7 connected by bus 12, a display and control section 8, display-control memory 10, and a display 11. The indicating equipment 11 consists of above-mentioned CRT or liquid crystal displays etc. which can display a display screen 5.

[0017] Moreover, although illustration is omitted, the airline printer for printing the denomination of the denomination identification unit for distinguishing the optical reader for reading a vote card and the cash injected from the cash close payment opening 4 and a vote ticket etc. is connected to said bus 12.

[0018] OS for operating this vote ticket automatic sale machine 1, an application program, work-piece data, an indicative data, etc. are stored in said RAM7.

[0019] A display and control section 8 controls the display-control memory 10 and a display 11, and management of a central processing unit (CPU) 6 is a processor which carries out independently executive operation only of the display control.

[0020] Drawing 5 shows the internal configuration of the display-control memory 10. This display-control memory 10 consists of VRAMs (Video RAM), and the point of having indicative-data storing field 10b as the extended editorial department with the usual display editing-on-screen field 10a is the description.

[0021] The required components image of a screen display is stored in indicative-data storing field 10b. This components image is a components image displayed in comparatively small fields, such as a figure and an alphabetic character.

[0022] The components image data stored in this indicative-data storing field 10b is stored in above-mentioned RAM7, and is read into indicative-data storing field 10b of the display-control memory 10 through the display-control section 8 if needed from a central processing unit (CPU) 6.

[0023] Although all the images for one screen are updated by the usual display-control memory when rewriting the contents of a display of the display screen 5 When renewal of a screen requires some only fields in this example, the components image of some the fields is beforehand prepared for indicative-data storing field 10b. Renewal of a display of a screen can be performed without covering a load over a central processing unit (CPU) 6 by reading this components image into display screen edit field 10a by control of a display and control section 8.

[0024] The display screen is prepared beforehand supposing the screen to update. To a ** case Although it must secure by the image which should prepare display screen edit field 10a In the case of the display control which should just update some screens like the vote ticket automatic sale machine 1 grade of this example It is not necessary to enlarge the scale of the display-control memory 10 so much that what is necessary is to prepare for indicative-data storing field 10b beforehand only the components image of the comparatively small field which should be updated.

[0025] Next, it is based on the flow Fig. of drawing 8, and the procedure of the central processing unit (CPU) 6 and display and control section 8 in this example is explained.

[0026] First, the case where a screen as shown in drawing 2 is displayed on the display screen 5 is assumed. On the screen shown in this drawing 2, although the user injected the latch of the bracket quinella for three frames from the cash close payment opening 4, it is the screen displayed when only the frame number for two frames is entered in the card inserted from the vote card slot 3.

[0027] That is, it is considered to be the cause that the user performed successive-victories vote for three frames, without marking only "1-2" and "2-3", or it was not able to read since an entry mistake or mark of a mark of the last frame number was thin.

[0028] At this time, a central processing unit (CPU) 6 extracts the touch key in which an actuation input is next possible (step 801,802). When the display screen 5 is giving an indication like drawing 2 here, a central processing unit (CPU) 6 predicts the touch key which a user inputs next. In the screen of drawing 2, it is operational here in the

numerical keypad of "1-6", "line cancellation", "correction" or, and "card return." Therefore, a central processing unit (CPU) 6 reads the components image data which is needed when ones of these keys is pressed from RAM7, and stores it in indicative-data storing field 10b of the display-control memory 10 beforehand through the display and control section 8 (step 803). Drawing 7 and drawing 8 show the example of the components image data at this time.

[0029] Namely, the thing for which the numeric value of an error part (part shown with a sign 204 by drawing 2), i.e., the part as which "?-?" was displayed on the display screen 5, is inputted as actuation of a user, Since it is expected that the actuation key of "card return" is pressed, or a central processing unit (CPU) 6 The components image data (701-706) of the numeric value of "1" - "6" as shown in drawing 7 , and components image data (901) as shown in drawing 9 are stored in indicative-data storing field 10b of the display-control memory 10 from RAM7, respectively (step 803).

[0030] In order that a user may specify "3-4" as a frame number, when the touch key (part shown with a sign 203 by drawing 2) of "3" is pressed first (step 804), next, a display and control section 8 The components image data (components image data shown with a sign 703 by drawing 7) of "3" is read from indicative-data storing field 10b of the display-control memory 10 (step 805). This image of "3" is arranged into the part (field shown with the sign 301 of drawing 3) as which "?" in the image data developed by display screen edit field 10a is displayed, and it considers as a new image (step 806,807).

[0031] When a user presses the touch key (part shown with a sign 205 by drawing 2) of "card return" (step 804), on the other hand in step 803, a display and control section 8 The components image data 901 shown in drawing 9 is read from indicative-data storing field 10b of the display-control memory 10 (step 805). This components image data 901 is arranged into the applicable part in the image data developed by display screen edit field 10a (field shown with the sign 601 of drawing 6), and it considers as a new image (step 806,807).

[0032] Thus, according to this example, the display screen can be updated at a high speed only by extending the display-control memory 10, without covering a load over a central processing unit (CPU) 6.

[0033] Although explained based on the example above, this invention is not limited to said example and includes the following additional remark-matters.

(Additional remark-matter)

(Additional remark 1) A display means to be the visual display unit which performs the purpose processing, making a user's input check in the display screen, and to display input, An input means to input the addition of the information displayed on the display, correction, or a check intention, A primary-storage means to memorize the display screen data and its partial image data for displaying on said display means, The display screen edit field for editing the display screen displayed on said display means, A display-control storage means to have the partial image storing field which stores the partial image displayed on said display screen, The 1st control means which transmits the partial image data which supervises the information displayed on said display means, and the input of an input means, and serves as a display candidate at least to the partial image storing field of said primary-storage means to said display-control storage means, The visual display unit which consists of the 2nd control means which reads corresponding partial image data from said partial image storing field, and is written out to said display screen edit field, without going via said 1st control means based on the input of said input means.

(Additional remark 2) Information which is the method of presentation which performs the purpose processing, making a user's input check in the display screen, and was displayed on the display means, Supervise the input of an input means and the partial image data which serves as a display candidate is beforehand transmitted to the partial image storing field of a primary-storage means to a display-control storage means based on said surveillance intelligence. The method of presentation in the visual display unit which reads the partial image data which should be displayed from said partial image storing field based on the input of said input means, and is written out to said display screen edit field.

(Additional remark 3) Information which is the display program which performs the purpose processing, making a user's input check in the display screen, and was displayed on the display means, Supervise the input of an input means and the partial image data which serves as a display candidate is beforehand transmitted to the partial image storing field of a primary-storage means to a display-control storage means based on said surveillance intelligence. The display program which reads the partial image data which should be displayed from said partial image storing field based on the input of said input means, and is written out to said display screen edit field and in which computer activation is possible.

(Additional remark 4) Information which is the display program which performs the purpose processing, making a user's input check in the display screen, and was displayed on the display means, Supervise the input of an input means and the partial image data which serves as a display candidate is beforehand transmitted to the partial image storing field of a primary-storage means to a display-control storage means based on said surveillance intelligence. The record medium which stored the program which reads the partial image data which should be displayed from said partial image storing field based on the input of said input means, and is written out to said display screen edit field and in which computer activation is possible.

(Additional remark 5) Said visual display unit is a visual display unit of the additional remark 1 publication which is the vote ticket automatic sale machine of a municipally operated race.

[Effect of the Invention] According to this invention, the visual display unit which can switch a high-speed screen can be realized by low cost only by extending some display-control storage means, without covering a heavy load for a central processing unit (CPU).

[Translation done.]

* NOTICES *

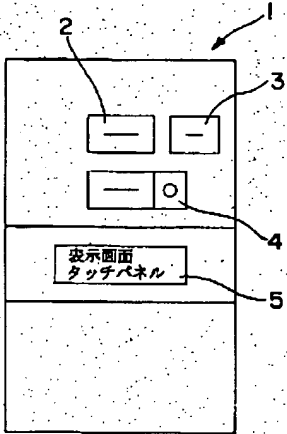
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DRAWINGS

[Drawing 1]

本発明の実施例である投票券自動発売機を示す正面図



[Drawing 2]

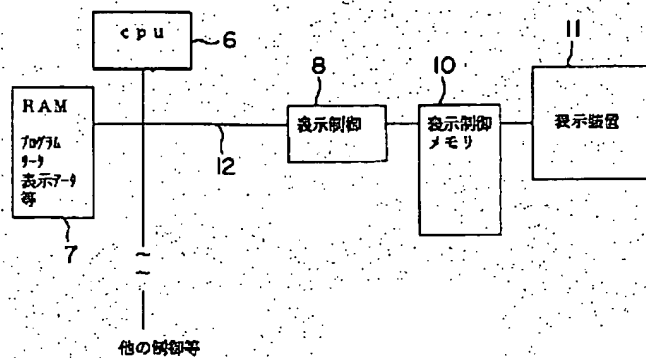
実施例の表示画面の表示例 (1)

| | | | |
|--------------|------------|----------|-----|
| 富士通 12レース | 枠番を選んで下さい | | 精算 |
| 購入金額 500円 | 枠番選勝 | 1 2 3 | 203 |
| 購入枚数 2枚 | 1-2 ☆☆100円 | 4 5 6 | |
| 残金 1000円 | 2-3 ☆☆100円 | 行取消 訂正 | |
| | ?? ☆☆100円 | | |
| | 合計 ☆☆300円 | | |
| | | キャンセル 返却 | 205 |

204

[Drawing 4]

実施例の表示制御の機能部を示すブロック図



[Drawing 9]

実施例の部品画像データを示す図（２）

カードを返却します
ありがとうございました

901

[Drawing 3]

実施例の表示画面の表示例（２）

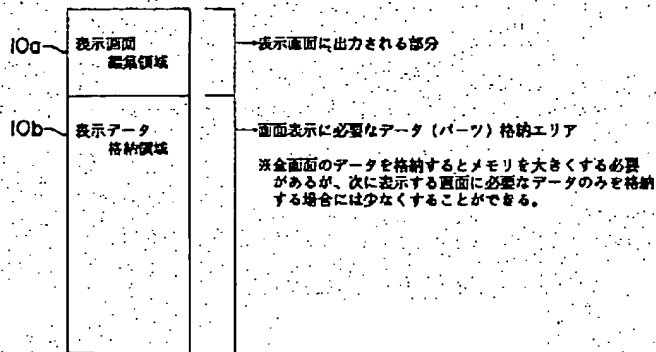
〈数字キー「3」が押された時の画面〉

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--|------|--------|--|--|-----|----|------|-----|----|------|-----|----|------|-----------|--|--|--|---|---|---|---|---|---|-----|--|----|
| 富士通 | 枠番を選んで下さい | | 精算 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12レース | <table border="1"> <tr><td colspan="3">枠番連勝</td></tr> <tr><td>1-2</td><td>☆☆</td><td>100円</td></tr> <tr><td>2-3</td><td>☆☆</td><td>100円</td></tr> <tr><td>3-?</td><td>☆☆</td><td>100円</td></tr> <tr><td colspan="3">合計 ☆☆300円</td></tr> </table> | | 枠番連勝 | | | 1-2 | ☆☆ | 100円 | 2-3 | ☆☆ | 100円 | 3-? | ☆☆ | 100円 | 合計 ☆☆300円 | | | <table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td colspan="2">行取消</td><td>訂正</td></tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 行取消 | | 訂正 |
| 枠番連勝 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-2 | ☆☆ | 100円 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-3 | ☆☆ | 100円 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-? | ☆☆ | 100円 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 合計 ☆☆300円 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 行取消 | | 訂正 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 購入金額 500円 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 購入枚数 2枚 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 残金 1000円 | | | 3-F 返却 | | | | | | | | | | | | | | | | | | | | | | | | |

301

[Drawing 5]

実施例の表示制御メモリの構成を示すブロック図



[Drawing 6]

実施例の表示画面の表示例 (3)

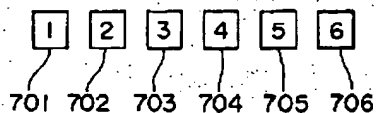
(カード返却キーが押された時の画面)

601

| | | |
|-------|--|----|
| 富士通 | | 精算 |
| 12レース | | |
| 購入金額 | | |
| 500円 | | |
| 購入枚数 | | |
| 2枚 | | |
| 残金 | | |
| 1000円 | | |

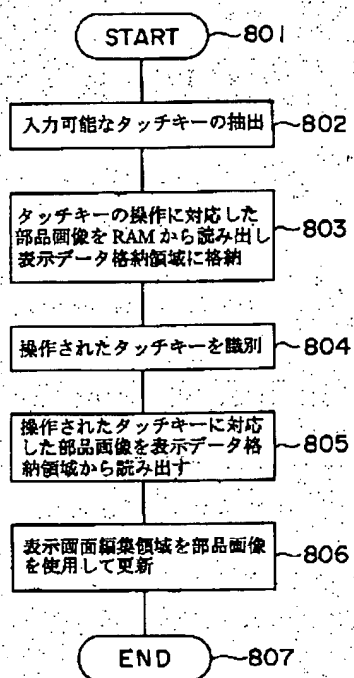
[Drawing 7]

実施例の部品画像データを示す図（１）



[Drawing 8]

実施例の処理手順を示すフロー図



[Translation done.]